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Central Intelligence Agency

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Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE

7 NOV 1985

MEMORANDUM FOR: Richard C. Barth, Director
Foreign Availability Division
Office of Export Administration
International Trade Administration
U.S. Department of Commerce

FROM: [redacted] 25X1
Director of Global Issues

SUBJECT: Foreign Availability of Arctic Deep Onshore and Offshore Drilling Rigs

1. As you requested the attached memorandum identifies the foreign availability of deep onshore and offshore arctic drilling rigs. [redacted] 25X1

[redacted] 25X1

2. This memorandum was prepared by [redacted] Strategic Facilities Branch, Office of Global Issues. Your comments on this memorandum are welcome and may be addressed to [redacted] Chief, Strategic Facilities Branch, OGI, [redacted] 25X1 25X1 25X1

[redacted] 25X1

Attachment: 25X1
The Foreign Availability of Arctic Drilling Equipment [redacted]
GI M 85-10292, November 1985 [redacted] 25X1

[redacted] 25X1

[redacted] 25X1

[redacted] 25X1

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SUBJECT: Foreign Availability of Arctic Deep Onshore and Offshore Drilling Rigs

OGI/SRD/SFB [redacted] (12 November 1985) 25X1

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Memorandum

The Foreign Availability of Arctic Deep Onshore and Offshore Drilling Rigs

Companies in Canada, Finland, Norway, Japan, and South Korea, and elsewhere have increasingly developed or adopted arctic drilling technology and manufacturing capabilities. The capabilities discussed here exclude the extensive foreign manufacturing operations of US companies, particularly in Canada and Western Europe. We also have not untangled the web of US licensing arrangements with foreign companies nor have we made an assessment of the origin of individual components of foreign rigs. We believe that, except for a few key items such as blowout preventors, the entire range of equipment for arctic deep drilling rigs is widely available abroad.

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Deep Onshore Arctic Rigs

The major foreign competition for US deep arctic onshore rig manufacturers comes from two Canadian companies, Dreco Energy Services Ltd and Nabors Drilling Company. Both these companies have the capability to produce rigs that can drill to 25,000 feet in arctic temperatures of -50 degrees C.

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these two companies have teamed up to compete with US firms bidding on the possible sales of arctic land rigs to the USSR. Other foreign firms which reportedly have the capability to produce similar rigs include Industrialexport-import of Romania, Villares of Brazil, and Forasol of France. (See Table 1) In addition we suspect

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that Rauma Repola of Finland and Nigata Engineering of Japan also have arctic rig onshore manufacturing capability.

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Knowledgeable industry sources report that rigs of 25,000 feet drilling capability can only be transported by heavy truck. The maximum depth of helicopter transportable rigs, such as those being used in the jungles of Colombia, is 15,000 feet.

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rigs easily transportable by truck or helicopter are specially modularized and usually built to individual operator specification.

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Offshore Arctic Rigs

Arctic offshore drilling rigs include drillships, jack-ups, semi-submersibles, and a variety of mobile caisson drilling units which are designed to operate in varying degrees of ice-infested waters. While most of the technology originated in the United States, arctic offshore rig design and construction capability is available from many countries. In fact, most arctic offshore drillships, jack-ups, semi-submersibles, and caissons have been built in either Finland, Japan or South Korea, rather than the United States (See Table 2). The USSR has relied heavily on the Finnish company Rauma Repola for most of its offshore drilling rigs including drillships, jack-ups and semi-submersibles. Japan has probably the most sophisticated capability and experience in fabricating specialized arctic mobile drilling units.

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While some countries such as South Korea import much of the onboard specialized drilling equipment from US companies, other countries, such as Finland, produce most of their own drilling equipment, although some of this equipment, such as blow out preventors, is under license from US companies. Design for arctic offshore rigs is primarily from companies in the United States, Canada, Netherlands, Finland, Norway and Japan, or joint ventures from one or more of these countries (See Table 3).

Table 1

Foreign Arctic Onshore Drilling Rigs - Fabrication

	Company	Country	Comments
o Deep Drilling	Villares	Brazil	o 25,000 ft capable
	Dreco Energy Services Ltd	Canada	o 25,000 ft capable
	Nabors Drilling Ltd	Canada	o 25,000 ft capable
	Forex	France	o 25,000 ft capable
	Forasol	France	o 25,000 ft capable
	Industrialexport-import	Romania	o 25,000 ft capable
o Exploration Drilling	Foundex Exploration	Canada	o Helicopter transportable

Table 2

Foreign Arctic Offshore Drilling Rigs - Fabrication

(Includes drillships, jack-ups, semi-submersibles, and arctic mobile caissons)

Company	Country	Comments
Versatile Pacific Shipbuilding LTD	Canada	o Formerly Burrand Yarrow Corporation.
Rauma Repola	Finland	o Builds semi-submersibles, jack-ups and drill ships for USSR.
Hitachi Zosen	Japan	o Built "Polar Pioneer" semi-submersibles for Norsk Hydro. $90 million cost.
Nippon Kokan (NKK)	Japan	o Built Concrete Island Drilling System (CIDS) for Global Marine - US.
Ishikawajima - Harima Heavy Industries Co (IHI)	Japan	o Built Molikpaq drilling unit for Beaudril - Gulf Canada.
Mitsui	Japan	o Built graving dock to construct arctic drilling/ production units.
Mitsubishi	Japan	o Built "Marosso 56 harsh" environment semi-submersible.
Sumitomo	Japan	o Planning to build graving docks for arctic drilling production systems.
Kawasaki Heavy Industries	Japan	o Built ice strengthened semi-submissible "Zapata Arctic."
Trosvik	Norway	o Semi-submersible experience.

BOS Pacific S. A	Mexico	o J/V of Bouygues and Kaiser-US.
Daewoo	South Korea	o Semi-submersible experience.
Hyundai	South Korea	o Building "Aker H-42" semi- submersible.
Samsung	South Korea	o New competitor in semi- submersible business.
Gotaverken Arendal (GVA)	Sweden	o Semi-submersible experience.
Blohm and Voss	West Germany	o Owns license for Fednav designed semi-submersible "P.099."

Table 3

Foreign Arctic Drilling Rigs - Design

(Includes drillships, Jack-ups, semi-submersibles, and arctic mobile caissons. Arctic production system designers noted)

Company	Country	Comments
Canmar	Canada	o Subsidiary of Dome Petroleum. Designed "SSDC" arctic mobile drilling vessel.
Swan Wooster	Canada	o Developing Navarin Basin production concepts.
Earl & Wright-Lavalin	Canada	o Designed Gulf Canada's conical drilling unit.
Bow Valley Offshore	Canada	o Designed "Bow Valley Grizzly" harsh environment jack-up.
Fednav Ltd	Canada	o Designed semi-submersible "P.099."
C. G Doris	France	o J/V with Fluor. Developing Jack Down Arctic Monopod (J-DAM).
Bouygues Offshore	France	o Developing "Zee Star" arctic mobile drilling rig.
ETPM	France	
Elomatic Oy	Finland	o Consulting services for arctic drilling and production systems.
Rauma Repola	Finland	o Developing in house semi-submersible design.

Nippon Kokan KK (NKK)	Japan	o Ice engineering specialists.
Mitsui	Japan	o Designing SPM for Arctic waters.
Tecnomare	Italy	o J/V with Brown & Root. Developing technical feasibility of steel platform for Bering Sea.
Gusto Engineering	Netherlands	o Designed drillships and jack-ups fabricated by Rauma Repola for USSR.
Marine Structure Consultants LTD	Netherlands	o J/V with Sumitomo for design for "DSS-40" arctic class semi-submersible.
ACZ Marine Contractor	Netherlands	o Designed steep slope island for Arctic production.
Polar Frontier Drilling A/S	Norway	o J/V between W. Wilhelmsen, and Sonat. Designed semi-submersible for Norsk Hydro.
Ross and Marotec	Norway	o Designed "Marosso 56" semi-submersible.
Aker Engineering	Norway	o Developed "D-6" sub arctic semi-submersible.
Norwegian Contractors	Norway	o Designed concrete monopod platform.
Trosvik	Norway	o Designed semi-submersible "Big Bear".
Blohm & Voss A.G.	West Germany	o Designed arctic production platform.